

Curriculum Vitae

General Information

- a) Name : **Malay Kumar Pandit**
- b) Address (Residential) : 168 Rajdanga School Road; Calcutta – 700 107
- Ph. No. : 98830 35230, (033) 2442 2286
- c) Current Employer: Haldia Institute of Technology, since Aug 2009
- d) Designation : **Professor** (2010-2011; 2017- till present); **Dean** (2011-2017)
- e) Department : **Electronics and Communication Engg/ School of Electronics, Computer**
- f) Date of Birth : 3rd April 1968
- g) Specialization : **Embedded Electronics; Artificial Intelligence;**

A) Academic Qualifications

Exam Passed	Board/ University	Subjects	Year	Division/Grade Merit etc.
High School	West Bengal Board of Secondary Education	Sciences, Humanities	1983	1 st div star
Higher Secondary or Pre-degree	West Bengal Board of Higher Secondary Education	Sciences	1985	1 st div star
Bachelor's Degree (s)	Jadavpur University	Electronics Telecom	1989	1 st class Hons
Master's Degree (s)	Jadavpur University	Electronics & Telecom	1991	1 st class Hons
Research Degree (s) (PhD)	Cambridge University, UK	Electronics Comm Engg	1996	

B) Research Experience & Training

Research Stage	Title of work/Theses	University where the work was carried out
Research Fellow (1991-1992)	Development of fused evanescent optical fibre couplers	Jadavpur University
Ph.D. (1992-1996)	Beam propagation dynamics in circularly symmetric media	Cambridge University, UK
Post-Doctoral(1997-2001)	Integrated Optic Engineering	City University of Hong Kong
Publications	Given at the end	
Research Guidance	Some research students guided: Mrs. Sheila Ghosh (Jadavpur) Mr. Bharat Das (Jadavpur) Mr. C. K. Li (Hong Kong) Mr. E. K. Wong (Hong Kong) Mr. P. S. Chow (Hong Kong) Mr. Suman Paul (Asst Prof, HIT) Rathin Giri(Asst Prof, Chandrakona)	City University of Hong Kong, Jadavpur University and Haldia Institute of Technology (HIT)

C) Key PhD Thesis Topics Guided/co-Guided (Total no: 6)

- Re-configurable Embedded Electronic Systems
- Intelligent state estimation in real-time embedded electronic systems
- Adaptive control of dynamic guidance systems
- Polarisation-splitters in compact optical X-junction

D) Key MTech Thesis Topics guided (Total no: 18)

1. Re-configurable data path architecture implementation in FPGA
2. Re-configurable Boolean processor in FPGAs
3. A Novel multi-core processor for matrix-vector multiplication
4. Contention-resolution in packet switching
5. Low-power VLSI Multipliers using reversible logic gates
6. Adaptive filters using DSP for power line harmonic control
7. Wide-angle X-junctions in polymer

E) Research Contributions:

a) Number of students (M.Phil./ Ph.D.)

At the beginning of the year		Awaiting Registration
M.Tech	2	NA
Ph.D.	1(thesis pre-submission presentatn completed)	3

F) Sponsored Research Projects carried out and submitted

Title of the Project	Name of the	Value and Duration
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	funding Agency	
1. Computer aided design of optical fibre amplifiers	City University of Hong Kong	Rs 10 lakhs; 1 year (1998-1999)
2. Wavelength controlled optical fibre lasers	City University of Hong Kong	Rs 20 lakhs; 2 years (1999-2001)
3. Optical fibre connectorization for LC ribbon jumpers	Ministry of IT, Govt of India	Rs 15 lakhs; 2 years (2003-2005)
4. Modernization of Embedded Electronics Lab	AICTE, Govt of India	Rs 6 lakhs; 1 year (2012-2013)
5. Identification of silt in Hooghly river using AI-based remote sensing	DST, Govt Of India	Rs 11 lakhs (submitted in Nov'15)

G) Seminars, Conferences, Symposia Workshops etc. organised

Name of the Seminar/ Conference/ Symposia Workshop, etc.	Name of the Sponsoring Agency	Place and Date
1. Winter School on PCB Fabrication for Embedded Electronics	Haldia Institute of Technology (HIT)	HIT, 10-14 Jan 2011
2. Winter School on PCB Fabrication for Embedded Electronics	Haldia Institute of Technology	HIT, 9-13 Jan, 2012

H) Teaching Experience

Courses Taught	Name of the University/ College / Institution	Duration
iv) B. Tech	City University of Hong Kong and Haldia Institute of Technology	3 + 5 = 8 years
v) M.Tech	City University of Hong Kong, Hong Kong and Haldia Institute of Technology (HIT)	3 + 5 = 8 years

Total Teaching Experience :8 years

b) Under-graduate : 8 years

c) Post-graduate: 8 years

I) Innovations/Contributions in Teaching

- a) Design of Curriculum M. Tech syllabus in “Microelectronic and VLSI Technology”

J) Industrial Experience (Nov 2001 – July 2009): 8 years

Worked as Research Project Manager in the Indian subsidiary of a USA-based firm: “**Fiber Optic Network Solutions (FONS)**” (I) Pvt Ltd”, Webel Industrial Estate, Taratala, West Bengal

Key achievements in FONS

- Struck major deals with the DRDO, Railways and BSNL, which have funded the company for new projects worth US\$0.1 million
- Re-strategise the **export-oriented** company to capture the domestic market, veering away from the sagging telecom **export market**
- Trained the engineers to package MEMS devices using the same set of equipment they were using to package Fibre ribbon jumpers, saving the company US\$0.12 million

K) Turn-key Projects consulted during work in FONS

1. SDH optical fibre networking (WAN) of EPABXs and routers for voice and IP data communication’
(**DRDO, India**)
Period: March, 2002 – Dec 2002
Budget: Rs.38 lakhs
2. ‘System design, supply, installation of SDH STM-1 Optical fibre communication system in Hatia-Ranchi-Lohardaga section of S.E. Railways’
Period: May 2002 – Jan 2003; **Budget:** Rs 1.2 crore (**Railways, India**)
3. ‘System design and commissioning of a 130 km “**repeaterless**” optical fibre link using **NZ-DSF** (non-zero dispersion shifted fibre)’
Period: June 2004 – Aug 2005; **Budget:** Rs 1.5 crore (**DRDO, India**)

L) Projects executed during work in FONS

1. 'Guest-house campus voice plus data **optical** fibre ring built by DLCs fed from a central primary exchange. E&M connectivity with other exchanges, trunk line connection by ISDN-PRI E1 line' in **DRDO, Orissa**; Period: Oct – Dec 2003; **Budget:** Rs 7 lakhs
2. 'Development of a FDMS (fibre distribution management system) using fibre ribbon jumpers for a CATV head-end' at **Calcutta**; Period: Oct 2002 – July 2003; **Budget:** Rs 5 lakhs

M) Industrial Training courses arranged

- Conducted Summer Training programme on “optical fibre network maintenance management” for 3rd year students of Haldia Institute of Technology during June 2011
- Conducted Winter Training programme on “optical fibre network maintenance management” for 3rd year students of Haldia Institute of Technology during Ja 2012

N) Membership of Professional Bodies, Societies etc.

IEEE (Institute of Electrical and Electronics Engineers)

SPIE (Society for Photo-optical Instrumentation Engineers, USA)

ISTE (Indian Society for Technical Education), New Delhi

O) Patents

“Automatic Dust Cleaning Smart Fan”, No: 544384; awarded on 8th July, 2024; Filed on 27th March 2023; published in Indian Patent office journal no. 14/2023, dtd 7 April 2023, page: 30875.

P) Projects in Haldia Institute of Technology

MODROBS (Modernization of laboratories) project of worth Rs 6 lakhs funded by the AICTE, Govt of India. Period 26 March 2012 – 25 March 2013 (1 year). (No.: 8024/RIFD/Mod-93(Pvt)/Policy-III/2011-12.

Q) Research Publications

International Journals

1. M. K. Pandit and F. P. Payne, 'Cerenkov second-harmonic generation by nondiffracting Bessel beams in bulk optical crystals', Optical and Quantum Electronics, Vol. 29, No. 1, pp. 35-51, 1997.

2. M. K. Pandit, H. P. Chan, K. S. Chiang, S. Ghosh, A. K. Das, 'A novel wide-angle polymeric Y-junction using gradient-index zones', *Microwave and Optical Technol Lett*, Vol. 22, pp. 126-129, 1999.
3. M. K. Pandit, H. P. Chan, K. S. Chiang, S. Ghosh, A. K. Das, 'A novel wide-angle polymeric X-junction using truncated-structural branches (TSB)', *Microwave and Optical Technol Lett*, Vol. 22, pp. 197-200, 1999.
4. M. K. Pandit, K. S. Chiang, Z. H. Chen and S. P. Li, 'Tunable long-period fiber gratings for EDFA gain and ASE equalization', *Microwave and Optical Technol Lett*, Vol. 25, pp. 181-184, 2000.
5. M. K. Pandit, H. P. Chan, K. S. Chiang, S. Ghosh, A. K. Das, 'A wide-angle X-junction in polymer using truncated-structural branches (TSB)', *IEEE/OSA Journal of Lightwave Technology*, Vol. 20, No. 1, pp. 86-91, 2002.
6. M. K. Pandit, K. S. Chiang, K. K. Cheung, S. P. Li and Z. H. Chen, 'A polarization-compensated EDFA gain equalizer', *Microwave and Optical Technol Lett*, Vol. 27, pp. 419-422, 2000.
7. M. K. Pandit, H. P. Chan, K. S. Chiang, S. Ghosh, A. K. Das, 'A digital optical switch (DOS) in polymer using truncated-structural X-branches', *Microwave and Optical Technol Lett*, Vol. 27, pp. 229-232, 2000.
8. M. K. Pandit, H. P. Chan, K. S. Chiang, S. Ghosh, A. K. Das, 'The WDM performance of compact X-junction switches in polymer', *Microwave and Optical Technol Lett*, Vol. 28, pp. 423-426, 2001.
9. S. Sarkar, A. K. Jana and M. K. Pandit, "A Novel All-Optical Video Imaging and Transmission System using Optical Fiber", *International Journal of Emerging Technologies (IJET)*, (ISSN no. 0975-8364), Vol 1, No. 2, 2010. pp. 36-38.
10. S. Paul, A. K. Jana and M. K. Pandit, 'A Novel Embedded Statistical Scheduler for Realising High System-QoS', *International Journal of Computer Science and Information Technology (IJCIT)* (ISSN no: 0975-4660), Vol 2, No 6, Dec 2010, pp. 56-62.
11. B. Bag, A. K. Jana and M. K. Pandit, "A Novel Dynamically Optimized Embedded Video Processor to Enhance the System QoS", *International Journal of Soft Computing and Engineering (IJSCE)* (ISSN: 2231-2307), Vol 1, No 4, Sept 2011, pp. 237-241.
12. R. N. Giri and M. K. Pandit, "Pipelined Floating-Point Arithmetic Unit (FPU) for Advanced Computing Systems using FPGA", *International Journal of Engineering and Advanced Technology (IJEAT)* (ISSN: 2249-8958), Vol 1, No 4, April 2012, pp. 73-79.
13. Sangeeta Jana, M. K. Pandit, A.K. Jana, "Statistical Optimal Controller for AGVs to achieve High Index of Performance", *International Journal of Engineering and Advanced Technology (IJEAT)*, (ISSN: 2249-8958), Vol 1, No 4, April 2012, pp. 237-240.
14. D. Mukherjee, A.K. Jana and M. K. Pandit, "A Novel Power Conditioning Unit (PCU) using Adaptive Signal Processing for Low THD", *International Journal of Engineering and Advanced Technology (IJEAT)*, (ISSN: 2249-8958), Vol 2, No 1, Oct 2012, pp. 62-68.

15. K. Majumdar, M. K. Pandit and A. K. Jana, "Design of a Novel Economic Multiplier in VLSI using Reversible Logic Gates", *International Journal of Engineering and Advanced Technology (IJEAT)*, (ISSN: 2249-8958), Vol 2, No 2, Dec 2012, pp. 317-321.
16. D. Mukherjee, A.K. Jana and M. K. Pandit, "Detailed Investigation on Power Conditioning Unit (PCU) using Intelligent Signal Processing", *International Journal of Engineering and Advanced Technology (IJEAT)*, (ISSN: 2249-8958), Vol 2, No 4, April 2013, pp. 426-434.
17. A. Dalmia, N. Kumar, M. K. Pandit and A. K. Jana, "A Novel Approach for Non-linear and Linear Data Prediction and Abstraction using Artificial Neural Network", *International Journal of Engineering Innovation and Research*, (ISSN: 2277-5668), Vol 3, No 6, June 2014, pp. 814-819.
18. M. Singh, M. K. Pandit and A. K. Jana, "Economic Full Adder Circuit in VLSI using Shannon Expansion", *International Journal of Science, Engineering and Technology* (ISSN: 2348-4098), Vol. 4, No 2, 2016, pp. 446-449.
19. Suman Paul and Malay Kumar Pandit, "Comprehensive Investigations on QUEST: a Novel QoS-Enhanced Stochastic Packet Scheduler for Intelligent LTE Routers", *KSII Transactions on Internet and Information Systems*, Vol. 12, No. 2, Feb 2018, pp. 579-603.
20. Paul, S. & Pandit, M.K., "A QoS-enhanced intelligent stochastic real-time packet scheduler for multimedia IP traffic", – *Journal of Multimedia Tools and Applications* (online: June 2017), Springer, DOI: <https://doi.org/10.1007/s11042-017-4912-6>, pp 1-24, Print ISSN 1380-7501, Online ISSN 1573-7721.
21. Suman Paul and Malay K Pandit, "Development of a QoS-enhanced statistical real-time packet scheduler for multimedia IP traffic", *Journal of Internet Technology*, by the Taiwan Academic Network, Ministry of Education, Taipei, Taiwan, R.O.C, SCI impact factor 1.93, ISSN 1607-9264, vol 9(7), Dec 2018.
22. Malay K Pandit and Asim K Jana, "Electronic control for propulsion and guidance of watercrafts", *International Journal of Research in Engineering and Science (IJRES)*, ISSN (Online): 2320-9364, ISSN (Print): 2320-9356, volume 10, Issue 10, Oct 2022, pp: 588-592.
23. Malay K Pandit and Asim K Jana, "Submersible pump water flow controller", *International Journal of Advances in Engineering and management (IJAEM)*, ISSN (Print): 2395 5252, volume 6, No 4, April 2024, pp: 797-801.
24. Malay K Pandit and Asim K Jana, "Radio frequency identification (RFID) for automated toll tax systems (Fastag)", *International Journal of Advances in Engineering and management (IJAEM)*, ISSN (Print): 2395 5252, volume 6, No 5, May 2024, pp: 81-86.

International and National Conferences

1. M. K. Pandit and A. K. Das, 'Analysis and modeling of low-loss fused fiber couplers', *SPIE International Conf. Proc.*, Vol. 1365, pp. 74-85, San Jose, California, 20-21 Sept., 1990.
2. M. K. Pandit, A. K. Das and A. K. Mandal, 'Effect of liquid on partially removed cladding SM fiber and its applications to sensors', *SPIE International Conf. OFS(C) Proc.*, vol. 1572, pp. 572-580, Wuhan, China, 9-11 Oct., 1991.

3. M. K. Pandit and A. K. Das, 'A novel fused evanescent multiport single mode fiber coupler for sensor applications', SPIE International Conf. OFS(C), Postdeadline Paper, Wuhan, China, 9-11 Oct., 1991.
4. M. K. Pandit, S. Ghosh, A. K. Das and H. P. Chan, 'Novel designs of wide-angle low-loss polymeric Y-junctions with optimised refractive-index grading', IPC'98 (Integrated International Photonics Conf.), Taipei, Taiwan, Dec 15-18, 1998.
5. M. K. Pandit, H. P. Chan, K. S. Chiang, S. Ghosh and A. K. Das, 'Wide-angle polymeric Y-junction devices using wavefront-processing by a gradient-index zone', ICOL-98 (International Conf. on Optics and Optoelectronics), Dehra Dun, India, Dec 9-12, 1998, Proc pp. 470-474.
6. M. K. Pandit, H. P. Chan, K. S. Chiang, S. Ghosh and A. K. Das, 'A novel design of wide-angle low-loss polymeric X-junctions using phase-front accelerators', Photonics-98 (International Conf. on Fiber optics and Photonics), New Delhi, India, Dec 14-18, 1998, Proc. pp. 643-646.
7. K. S. Chiang, Z. H. Chen and M. K. Pandit, 'Tunable long period fiber gratings for EDFA gain equalization', SPIE Int Conf on Design, Fabrication and Characterization of Photonic Devices, Singapore, Nov-Dec, 1999, Proc. vol. 3896, pp. 562-569.
8. M. K. Pandit, H. P. Chan, K. S. Chiang, S. Ghosh and A. K. Das, 'A new design for wide-angle polymer X-junction', Proc. SPIE International Conf Photonics West, Jan 2000, California, USA, Vol. 3936, pp. 107-112.
9. M. K. Pandit, H. P. Chan, K. S. Chiang, S. Ghosh and A. K. Das, 'A compact X-junction switch in polymer for WDM applications', Photonics-2000 (International Conf. on Fiber optics and Photonics), Calcutta, India, Dec 16-18, 2000, Proc. pp. 157-160.
10. M. K. Pandit, A. Mukherjee, 'Comparison of Zero-gap and Finite-gap Integrated Optic X-junctions in Polymer', Photonics-2002 (International Conf. on Fiber optics and Photonics), Bombay, India, Dec 16-18, 2002.
11. A K Jana and M K Pandit, "A Novel Laser Imaging Technique for Satellite Laser Communication", Proceedings of National Conference in Electrical, Power Engineering, Electronics and Computer (Tech Meet 2010) organised by Pailan College of Management and Technology, February 12-13, 2010, pp. 62-65
12. A.K.Jana, S.Bhunia, M.K.Pandit, "A novel satellite receiver array-antenna in VLSI chip", Proc of National Conference on Materials, Devices and Circuits in Communication technology held on March 27-28, 2010 organized jointly by IETE Burdwan Sub-Center and Dept. of Physics, University of Burdwan, Burdwan, pp-68-69.
13. S. Paul, A. K. Jana and M. K. Pandit, 'A Novel Embedded Scheduler Based on Markov Statistics for Generating High QoS', Proceedings of International Conference

on Communication and Computational Intelligence - 2010, organised by Kongu Engineering College, Anna University, Tamil Nadu, India, Dec 27-29, 2010, pp 7-10

14. B. Bag, A. K. Jana and M. K. Pandit, 'A Novel Video Burst Processor offering High QoS', Springer LNCS Proceedings for 'International Conf on Communication Network and Computing CNC-2011', Springer-Verlag LNCS, Eds V. V. Das, J. Stephen, Bangalore, India, 10-11 March, 2011, pp. 51-55.
15. M. Brahma, N. Gupta, A. K. Jana and M. K. Pandit, 'RELICS: A Novel Reconfigurable Lightpath Communication Systems Design Tool', Proc of International Conf on Convergence of Optics and Electronics (CoE), JIS College of Engineering, WB, Feb 2011, Eds: D. Choudhury and G. Lohar, pp: 153-160.
16. S. Paul, A. K. Jana and M. K. Pandit, 'A Novel Artificially-intelligent Statistical Embedded Scheduler', Proceedings of 2011 IEEE International Conference on Computational Intelligence and Computing Research, IEEE Xplore catalog no: CFP1120J-PRT, organised by Cape Institute of Technology, Levengipuram, Kanyakumari, India, Dec 15-18, 2011, pp 216-220.
17. S. Jana, A.K. Jana and M. K. Pandit, 'A Novel Statistical Adaptive Position-Speed Controller For AGV's to Achieve Robust Index Performance (IP)', International Conf on Systemics, Cybernetics and Informatics (ICSCI-2012), organized by Pentagram Research Pvt Ltd, Hyderabad, India, Feb 15-18, 2012, Proceedings by American Institute of Physics, USA, vol. 1, pp. 11-15, 2012.
18. R. Giri, A. Samanta, A. K. Jana and M. K. Pandit, 'A Novel Floating-point Arithmetic Unit (FPU) for Advanced Computing Applications', International Conf on Systemics, Cybernetics and Informatics (ICSCI-2012), organized by Pentagram Research Pvt Ltd, Hyderabad, India, Feb 15-18, 2012, Proceedings by American Institute of Physics, USA, vol.1, pp. 45-48, 2012.
19. S. Tripathi, J. Jana, S. Mandal, D. Pal, K. Das, A. K. Jana, and M. K. Pandit, "Cost Efficient Bluetooth Controlled Robot Car for Material Handling", 2nd International conference on on Communication, Devices and Computing (ICCDC 2019), Haldia, West Bengal, INDIA during 14-15 March, 2019.
20. S. Bera, M. K. Pandit and A. K. Jana, "Prototype Design of Intelligent Package Sorting System", **Accepted in** 2nd International conference on on Communication, Devices and Computing (ICCDC 2019), Haldia, West Bengal, INDIA during 14-15 March, 2019.

(Prof (Dr) M K Pandit)
